WHAT IS CLAIMED IS:

1.   A method of communicating data packets from a transmitter to a receiver, the method comprising:

dividing a first data packet of said data packets into a first set of segments;

5   transmitting the first set of segments by the transmitter;

receiving the first set of segments by the receiver;

storing the received first set of segments in a first storage means;

reassembling the first data packet from the stored first set of segments;

10   assigning a first priority level to the first data packet;

if, during the step of transmitting the first set of segments after the transmission of a first subset of the first set of segments, a second data packet is assigned a higher priority level than the first priority level, performing the steps of:

15   suspending transmitting the first set of segments;

transmitting the second set of segments by the transmitter;

20   receiving the second set of segments by the receiver;

storing the received second set of segments in the first storage means;

reassembling the second data packet from the stored second set of segments; and

25   resuming the suspended transmission of the first set of segments; and

deleting all segments of the first subset of segments, which are stored in the first storage means, from the first storage means upon occurrence of a predetermined event.

2.   The method according to claim 1, wherein reassembling a selected one of the first and the second data packets further comprises selectively deleting the corresponding first or second set of segments from the first storage means.

3.   The method according to claim 1, wherein transmitting the second set of segments by the transmitter is completed before the step of resuming the suspended transmission of the first set of segments is initiated.

4.   The method according to claim 1, wherein if after the step of transmitting the second set of segments by the transmitter there are suspended transmissions of a plurality of sets of segments pending, then the plurality of sets of segments comprises a set of segments with highest priority and the suspended transmission of the set of segments with highest priority is resumed.

5.   The method according to claim 1, wherein dividing a selected one of the first and second data packets into the corresponding first or second set of segments further comprises the step of storing at least a part of the corresponding first or second set of segments in a second storage means, and if during the step of transmitting the

second set of segments a predetermined transmission timeout
event occurs, all segments of the second set of segments and
of the first set of segments, which are stored in the second
storage means, are deleted from the second storage means.

6.   The method according to claim 1, wherein the first
and second priority levels are selected from a set of priority
levels comprising a number of possible priority levels; and
the first storage means is adapted to store at least a
predetermined number of sets of segments of a predetermined
size, the predetermined number of sets of segments
corresponding to the number of possible priority levels.

7.   The method according to claim 6, wherein each
priority level of said number of possible priority levels
corresponds to a respective predetermined timeout limit.

8.   The method according to claim 1, wherein
transmitting a selected one of the first and second sets of
segments comprises the step of storing at least one segment of
the corresponding first or second set of segments in a third
storage means; and if a predetermined transmission timeout
event occurs, all segments of the corresponding first or
second set of segments, which are stored in the third storage
means, are selectively deleted from the third storage means.

9.   The method according to claim 1, wherein if during
the step of transmitting a selected one of the first and
second set of segments a predetermined transmission timeout

event occurs, the transmitter sends a notification to the receiver.

10. The method according to claim 9, wherein the notification is encoded into a segment which is transmitted after the predetermined transmission timeout event has occurred.

11. The method according to claim 9, wherein the notification is encoded as '00' in an L_CH code of an ACL payload header.

12. The method according to claim 9, wherein the notification is encoded as '00' in an L_CH code of a packet boundary field of a baseband packet at the receiver.

13. The method according to claim 9, wherein the predetermined event is a reception of the notification by the receiver, and when the notification is received by the receiver all segments stored in the first storage means are deleted from the first storage means.

14. The method according to claim 1, wherein the predetermined event is a reception of an initial segment of a third set of segments by the receiver when the number of subsets of segments which are stored in the first storage means corresponds to the number of possible priority levels.

15. A communication system for communicating data packets from a transmitter to a receiver, the system comprising:

first processing means adapted to divide a first data packet of said data packets into a first set of segments;

transmitting means adapted to transmit the first set of segments;

receiving means adapted to receive the first set of segments;

first storage means adapted to store the received first set of segments;

second processing means adapted to reassemble the first data packet from the stored first set of segments; and

third processing means adapted to assign a first priority level to the first data packet,

wherein:

the transmitting means is adapted to suspend the transmission of the first set of segments after a first subset of the first set of segments has been transmitted, to transmit a second set of segments corresponding to a second data packet of said data packets with a higher priority level than the first data packet, and to resume the suspended transmission of the first set of segments; and

the second processing means is adapted to delete all segments of the first subset of segments, which are stored in the first storage means, from the first storage means, if a predetermined event occurs.

16. The system according to claim 15, wherein the second processing means is adapted to selectively delete a selected one of the first and second sets of segments from the first storage means when reassembling the corresponding first or second data packet.

17. The system according to claim 15, wherein the transmitting means is adapted to complete transmitting the second set of segments before resuming the suspended transmission of the first set of segments.

18. The system according to claim 15, wherein if after transmitting the second set of segments by the transmitter there are suspended transmissions of a plurality of sets of segments pending, then the plurality of sets of segments comprises a set of segments with highest priority and the transmitter is adapted to resume the suspended transmission of the set of segments with highest priority.

19. The system according to claim 15, wherein the system further comprises a second storage means adapted to store at least a part of a selected one of the first and second set of segments, and if a predetermined transmission timeout event occurs when transmitting the second set of segments, the first processing means is adapted to delete all segments of the first and second sets of segments, which are stored in the second storage means, from the second storage means.

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20. The system according to claim 15, wherein the first and second priority levels are selected from a set of priority levels comprising a number of possible priority levels; and the first storage means is adapted to store at least a predetermined number of sets of segments of a predetermined size, the predetermined number of sets of segments corresponding to the number of possible priority levels.

21. The system according to claim 20, wherein each priority level of said number of possible priority levels corresponds to a respective predetermined timeout limit.

22. The system according to claim 15, wherein the system further comprises third storage means adapted to store at least one segment of a selected one of the first and second sets of segments; and if a predetermined transmission timeout event occurs, all segments of the corresponding first or second set of segments, which are stored in the third storage means, are selectively deleted from the third storage means.

23. The system according to claim 15, wherein the transmitter is adapted to send a notification to the receiver, if a predetermined transmission timeout event occurs.

24. The system according to claim 23, wherein the transmitter is adapted to encode the notification into a segment which is transmitted after the predetermined transmission timeout event has occurred.

25.   The system according to claim 23, wherein the first processing means is adapted to encode the notification as '00' in an L_CH code of an ACL payload header.

26.   The system according to claim 23, further comprising a fourth processing means adapted to encode the notification as '00' in an L_CH code of a packet boundary field of a baseband packet.

27.   The system according to claims 23, wherein the predetermined event is a reception of the notification by the receiver, and the second processing means is adapted to delete all segments stored in the first storage means when the notification is received by the receiver.

28.   The system according claims 15, wherein the predetermined event is a reception of an initial segment of a third set of segments by the receiver when the number of subsets of segments which are stored in the first storage means corresponds to the number of possible priority levels.

29.   An apparatus for receiving data packets, the apparatus comprising:
      receiving means adapted to receive a first set of segments of a first data packet of said data packets;
      first storage means adapted to store the received first set of segments;
      first processing means adapted to reassemble the first data packet from the stored first set of segments,

wherein:

the first storage means is adapted to store a plurality of sets of segments; and

the first processing means is adapted to delete a predetermined selection of segments of the first set of segments from the first storage means prior to reassembling the first data packet, if a predetermined event occurs.

30.   The apparatus according to claim 29, wherein the first processing means is adapted to selectively delete the first set of segments from the first storage means when reassembling the first data packet.

31.   The apparatus according to claim 29, wherein the predetermined event is a reception of a transmission failure notification by the receiver, and the second processing means is adapted to delete all segments stored in the first storage means when the notification is received by the receiver.

32.   The apparatus according to claim 31, further comprising a second processing means adapted to encode the transmission failure notification as '00' in an L_CH code of a Baseband packet header.

33.   The apparatus according to claim 29, wherein the predetermined event is a reception of an initial segment of a second set of segments by the receiver when the number of subsets of segments which are stored in storage means is equal to a predetermined number.

34.   An apparatus for transmitting data packets, the apparatus comprising:

first processing means adapted to divide a first data packet of said data packets into a first set of segments;

transmitting means adapted to transmit the first set of segments; and

second processing means adapted to assign a first priority level to the first data packet,

wherein:

the transmitting means is adapted to suspend the transmission of the first set of segments after a first subset of the first set of segments has been transmitted, to transmit a second set of segments corresponding to a second data packet of said data packets with a higher priority level than the first data packet, and to resume the suspended transmission of the first set of segments.

35.   The apparatus according to claim 34, wherein the transmitting means is adapted to complete transmitting the second set of segments before resuming the suspended transmission of the first set of segments.

36.   The apparatus according to claim 34, wherein if after transmitting the second set of segments by the transmitter there are suspended transmissions of a plurality of sets of segments pending, the plurality of sets of segments comprises a set of segments with highest priority and the transmitter is adapted to resume the suspended transmission of the set of segments with highest priority.

37.   The apparatus according to claim 34, wherein the apparatus further comprises first storage means adapted to store at least a part of a selected one of the first and second set of segments, and if a predetermined transmission timeout event occurs when transmitting the second set of segments, the first processing means is adapted to delete all segments of the first and second sets of segments, which are stored in the first storage means, from the first storage means.

38.   The apparatus according to claim 34, wherein the first and second priority levels are selected from a set of priority levels comprising a number of possible priority levels.

39.   The apparatus according to claim 38, wherein each priority level of said number of possible priority levels corresponds to a respective predetermined timeout limit.

40.   The apparatus according to claim 34, wherein the apparatus further comprises second storage means adapted to

store at least one segment of a selected one of the first and second sets of segments; and if a predetermined transmission timeout event occurs, all segments of the corresponding first or second set of segments, which are stored in the second storage means, are selectively deleted from the second storage means.

41. The apparatus according to claim 34, wherein the transmitter is adapted to send a notification, if a predetermined transmission timeout event occurs.

42. The apparatus according to claim 41, wherein the transmitter is adapted to encode the notification into a segment which is transmitted after the predetermined transmission timeout event has occurred.

43. The apparatus according to claim 41, wherein the first processing means is adapted to encode the notification as '00' in an L_CH code of an ACL payload header.

44. A transmitter for use in a communication system according to claim 15.